

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-7, 9, and 12-21 are pending. Claims 4, 5, 18, and 19 are withdrawn. Claims 10 and 11 are canceled without prejudice or disclaimer and Claims 1 and 14 are amended by the present amendment. As amended Claims 1 and 14 are supported by the original disclosure,¹ no new matter is added.

In the outstanding Office Action, the drawings were objected to; Claims 1, 2, 6, 9-16, and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Schneider et al. (U.S. Patent No. 6,261,403, hereinafter “Schneider”) in view of Takagi (U.S. Patent No. 6,676,759); Claims 3 and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Schneider in view of Takagi and further in view of Yamaguchi et al. (Japanese Patent Publication No. 5-140771, hereinafter “Yamaguchi”); and Claims 7 and 21 were rejected as unpatentable over Schneider in view of Takagi and further in view of Koike (U.S. Patent Application Publication No. 20020072240).

Initially, applicants and applicants’ representatives thank Primary Examiner Hassanzadeh and Examiner Crowell for the interview held on June 5, 2007 to discuss the present case. During the interview, differences between the claimed invention and the cited references were discussed in detail, as were proposed amendments as presented herein. Examiner Crowell agreed to reconsider the rejections of record after formal submission of the present response.

With regard to the objection to the drawings, a corrected Figure 4 is submitted herewith which labels the pressure detectors “18” instead of “16.” The specification is also

¹See, e.g., paragraph 30.

amended to reflect this change. Accordingly, the objection to the drawings is believed to be overcome.

With regard to the rejection of Claim 1 as unpatentable over Schneider in view of Takagi, that rejection is respectfully traversed.

Amended Claim 1 recites in part:

a process chamber;
an upper electrode assembly;
a plurality of pressure detectors configured to detect pressures in a plurality of locations in the process chamber;
a chuck assembly including a support surface configured to support a wafer; and
a fluid flow control member including a plurality of recesses, said fluid flow control member located on the chuck assembly and surrounding the support surface of the chuck assembly, *the fluid flow control member having an upper surface substantially in a same plane as the support surface of the chuck assembly when the fluid flow control member is in a withdrawn position*,
wherein the chuck assembly includes a plurality of lift pin assemblies for lifting the fluid flow control member at at least one location, each lift pin assembly including a lift pin configured to engage with a respective recess of the fluid flow control member to *directly lift the fluid flow control member to an extended position such that the upper surface of the fluid flow control member extends above the support surface of the chuck assembly*, the lift pins configured to be controlled based on the pressures detected by the plurality of pressure detectors.

In contrast, Schneider describes an etch chamber 100 including a control ring 104. As shown in Figure 2 of Schneider, control ring 104 is located below throttling ridge 160, which is located below the substrate support 124. Thus control ring 104 does not include any surface substantially in a same plane as the substrate support 124 when the control ring 104 is in *any* position, as the throttling ridge 160 prevents the control ring 104 from reaching the level of the substrate support 124. Thus, control ring 104 of Schneider is not “a fluid flow control member” as defined in Claim 1.

Takagi describes a process chamber 12 including a lift ring 32. However, as shown in Figure 3A of Takagi, the upper surface of lift ring 32 is always above the recess 26 of susceptor 22, which supports the wafer W. Thus, lift ring 32 of Takagi is not “a fluid flow control member” as defined in Claim 1 either.

Further, it is respectfully submitted that any modification of Schneider to create the claimed invention would be contrary to the principle of operation of Schneider. As shown in Figure 3 of Schneider, control ring 104 is designed to be received by a groove in throttling ring 160 so as to act as a valve which controls the pressure in chamber volume 110. If the control ring 104 of Schneider were modified as recited in Claim 1, control ring 104 would no longer be able to control the pressure in chamber volume 110. In fact, throttling ring 160 is designed to prevent control ring 104 from being extended to the level of the substrate support 124. Thus, it is respectfully submitted that there is no suggestion or motivation to modify the device described by Schneider to make the claimed invention, as such a modification of Schneider would change the principle of operation of the described device. See MPEP §2143.01(VI).

As the cited references do not teach each and every element of amended Claim 1, and there is no suggestion or motivation to modify the primary reference to create the claimed invention, Claim 1 (and Claims 2-7, 9, 12, and 13 dependent therefrom) is patentable over Schneider in view of Takagi.

Claim 14 recites in part:

...
a chuck assembly including a support surface configured to support a wafer; and
a fluid flow control member including a plurality of recesses, said fluid flow control member located on the chuck assembly and surrounding the support surface of the chuck assembly, *the fluid flow control member having an upper surface substantially in a same plane as the support surface of the chuck assembly when the fluid flow control member is in a withdrawn position,*

wherein the chuck assembly includes a plurality of lift pin assemblies for lifting the fluid flow control member at at least one location, each lift pin assembly including a lift pin configured to engage with a respective recess of the fluid flow control member to *directly lift the fluid flow control member to an extended position such that the upper surface of the fluid flow control member extends above the support surface of the chuck assembly*, the lift pins configured to be controlled based on the pressures detected by the plurality of pressure detectors.

Since neither Schneider nor Takagi teaches or suggests “a fluid flow control member” as defined in amended Claim 14, and there is no suggestion or motivation to combine Schneider and Takagi to create the claimed invention, it is respectfully submitted that Claim 14 (and Claims 15-21 dependent therefrom) is patentable over Schneider in view of Takagi.

With regard to the rejection of Claims 3 and 17 as unpatentable over Schneider in view of Takagi and further in view of Yamaguchi, it is noted that Claims 3 and 17 are dependent from Claims 1 and 14, and thus are believed to be patentable for at least the reasons discussed above. Further, it is respectfully submitted that Yamaguchi does not cure any of the above-noted deficiencies of Schneider and Takagi. Accordingly, it is respectfully submitted that Claims 3 and 17 are patentable over Schneider in view of Takagi and further in view of Yamaguchi.

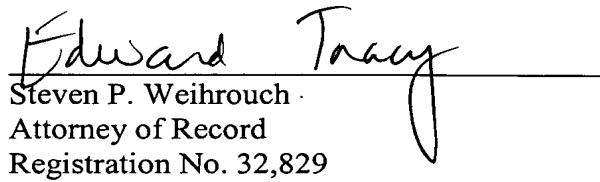
With regard to the rejection of Claims 7 and 21 as unpatentable over Schneider in view of Takagi and further in view of Koike, it is noted that Claims 7 and 21 are dependent from Claims 1 and 14, and thus are believed to be patentable for at least the reasons discussed above. Further, it is respectfully submitted that Koike does not cure any of the above-noted deficiencies of Schneider and Takagi. Accordingly, it is respectfully submitted that Claims 7 and 21 are patentable over Schneider in view of Takagi and further in view of Koike.

With regard to withdrawn Claims 4, 5, 18, and 19, it is respectfully requested that these claims be rejoined and allowed, as they depend from Claims 1 and 14, which are believed to be allowable.

Consequently, in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-7, 9, and 12-21 patentably distinguishes over the cited art. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of this application is therefore respectfully requested.

Respectfully submitted,

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